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ABSTRACT**[69]**

A system and automated method for assessing ventricular synchrony in ambulatory patients is provided including at least one mechanical sensor (e.g., accelerometer, tensiometric sensor, force transducer, and the like) operatively coupled to a first myocardial location in order to measure a wall motion signal of a first chamber, and a second mechanical sensor operatively coupled to a second myocardial location in order to measure a wall motion signal of a second chamber. The wall motion signals are processed in order to identify the time at which a fiducial (e.g., an inflection point, a threshold crossing, a maximum amplitude, etc.) occurs for each respective signal. The temporal separation between the fiducial points on each respective signal is measured as a metric of ventricular synchrony and can be optionally utilized to adjust pacing therapy timing to improve synchrony.